

In re Patent Application of:

MORSE ET AL.

Serial No. **09/988,906**

Filing Date: **11/20/01**

REMARKS

Claims 1-14 and 16-32 remain in this application. Claims 15 has been cancelled. Claims 1, 11, 24, and 29 have been amended.

Applicants thank the Examiner for the detailed study of the application and prior art. At the outset, Applicants have cancelled claim 15. The drawing objection concerned claim 15, which is no longer applicable.

Applicants note that all claims were rejected as anticipated or obvious over U.S. Patent No. 6,386,767 to Naghschi, which discloses a high density multiple chip fiber array connector. Naghschi has ridges formed within a housing. The ridges align ferrules 18 that engage a modified V-shape of parallel ribs. The ferrules 18 contain optical fibers connected to ribbon cables, and are formed from silicon members 18a, 18b that have V-grooves etched therein to hold the fibers. The fibers are glued in the V-grooves and the members 18a, 18b are joined by an adhesive to "sandwich" the fibers between the members 18a, 18b. Naghschi discloses grooves 23 that slidably engage the ridges 17 to position ferrules 18 within the connector. The ridges 17 are regularly spaced and align each ferrule 18 to ensure that the ferrules 18 are perpendicularly aligned to alignment chips 14. This provides accurate positioning of the ferrules within parallel planes.

The present claimed invention is opposite from Naghschi. In the present claimed invention, there is a single substrate having a substantially planar top reference surface formed as an optically flat polished surface. This surface includes at least one of implanted waveguides, deposited

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silica waveguides, and precision grooves at the top reference surface and defined by semiconductor masking. A substantially planar single lithographically defined side reference surface is formed at an edge portion of the top reference surface. Thus, not only is the flat polished top reference surface operative as a reference surface, but it also contains the implanted waveguides, deposited silica waveguides or precision grooves, which are positioned a predetermined distance from the side reference surface.

The ferrules 18 in Naghski, on the other hand, are formed from two silicon members, faced with grooves and adhesively glued together. These surfaces do not form a reference surface. Also, in the present claimed invention, a substantially planar, single lithographically defined side reference surface is used and cooperates with the top reference surface and aligns with fiducials on a carrier bracket and substrate carrier. Naghski nowhere discloses the use of substantially planar and lithographically formed or optically polished top or side reference surfaces. Instead, Naghski discloses the use of non-planar ridges and ribs, for example, a truncated cone or a modified V-shape groove, which can be formed by chemical etching. Naghski does not have a top and side reference surface. Instead, it uses a V-groove guideway.

In the present claimed invention, there is no formed guideway as in Naghski. Instead, there are the two reference surfaces: (a) the substantially planar top reference surface, having the implanted waveguide, deposited silica waveguide or precision grooves; and (b) side reference surface.

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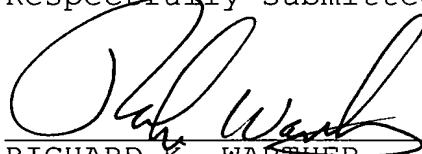
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These two reference surfaces are operative with the carrier bracket and substrate carrier as claimed to ensure accurate alignment of waveguides. If Naghski were applied to the present claimed invention, then the carrier bracket and substrate carrier would incorporate some type of V-groove, angled ridges. The substrate would have angled edges instead of a substantially planar top reference surface and substantially planar single lithographically defined side reference surface. The substantially planar top and side reference surface of the present invention are opposite as compared to the angled edges shown in Naghski.

Accordingly, Applicants contend that the present case is in condition for allowance and respectfully request that the Examiner issue a Notice of Allowance and Issue Fee Due. If the Examiner has any questions or suggestions for placing this case in condition for allowance, the undersigned attorney would appreciate a telephone call.

Respectfully submitted,



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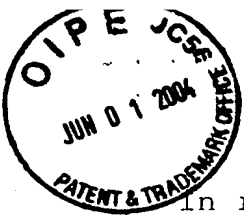
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Julie Lalan